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| 10/820,472      | 04/07/2004  | Stanislav I. Ionov   | M-15363 US          | 7559             |

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| EXAMINER |
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CURS, NATHAN M

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| ART UNIT | PAPER NUMBER |
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2613

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09/10/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/820,472

Applicant(s)

IONOV ET AL.

Examiner

Nathan Curs

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-12 is/are allowed.
- 6) ☒ Claim(s) 1, 3, 13 and 23-25 is/are rejected.
- 7) ☒ Claim(s) 2, 4-8, 14-22 and 26-31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Terminal Disclaimer***

1. The terminal disclaimer filed on 2 July 2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on US Patent Application No. 10/820915, has been reviewed and is accepted. The terminal disclaimer has been recorded.

### ***Claim Objections***

2. Claims 13, 14, 18, 29 and 30 are objected to because of the following informalities:

Claim 13 in lines 12-14 recites "...a discriminator adapted to... provide digital electrical output signals based on the wavelengths". This should be "...a discriminator adapted to... provide a digital electrical output signal based on the wavelengths" since the specification describes one digital electrical output signal with respect to plural output optical pulse wavelengths.

Claim 14 in line 2 recites "...the digital electrical output signals are based on values...". This should be "...the digital electrical output signal is based on values..." for the same reason provided above for claim 13 above.

Claim 18 in lines 7-9 recites "...a discriminating circuit adapted to... provide the digital electrical output signals..." This should be changed to "...a discriminating circuit adapted to... provide the digital electrical output signal..." for the same reason provided for claim 13 above.

Claims 29 and 30, each in lines 2-3, recite "...the corresponding digital electrical signal for each of the electrical output signals..." This should be "...the corresponding digital electrical

signal for the electrical output signals..." to clarify that what's being claimed is one digital electrical signal, not one digital electrical per electrical output signal.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 3, and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The claim recites the limitation "means for receiving the optical signal with the time delay and providing an output signal having a wavelength based on the time delay". According to this limitation, the means has one input and one output. However, according the specification, the means must have two inputs, one for the optical signal with the time delay and one for an optical clock.

Claim 3 recites the limitation "the optical clock" in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. The claim recites the limitation "an analog delay modulator adapted... to provide optical pulses having time delays determined by the analog electrical signal". According to this limitation, the optical pulses originate with the analog

delay modulator. However, according to the specification, the optical pulses originate with an optical pulse generator (e.g. recited in claim 15), the optical pulse generator and analog delay modulator being two different elements coupled together.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Yariv (US Patent No. 6219172).

Regarding claim 23, Yariv discloses an analog-to-digital converter comprising: an optical pulse generator adapted to receive an analog electrical signal and provide optical pulses having time delays determined by the analog electrical signal; and an optical pulse discriminator adapted to receive the optical pulses and provide a digital electrical signal, wherein the digital electrical signal is based on the analog electrical signal (fig. 1 and col. 4, line 18 to col. 5, line 2).

Regarding claim 24, Yariv discloses the analog-to-digital converter of claim 23, wherein values of the digital electrical signal are digital representations of corresponding values of the analog electrical signal (col. 4, lines 18-21).

Regarding claim 25, Yariv discloses the analog-to-digital converter of claim 23, wherein the optical pulse generator comprises a waveguide adapted to receive the optical pulses and provide the time delays to the optical pulses under control of the analog electrical signal (col. 4, lines 31-44).

***Allowable Subject Matter***

7. Claims 9-12 are allowed.

8. Claims 26-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 1, 3 and 13 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, and the objections as applicable, set forth in this Office action.

10. Claims 2, 4-8 and 14-22 are objected to as depending from a rejected base claim, and for the reasons described above, as applicable, but would be allowable if the rejection(s) under 35 U.S.C. 112, 2nd paragraph, and the applicable objections, set forth in this Office action, were overcome.

11. Claims 29-31 are objected to as described above, but would be allowable if amended to overcome the objections.

***Response to Arguments***

12. Applicant's arguments filed 21 June 2007 have been fully considered but they are not persuasive. The applicant argues that Yariv does not disclose "an optical pulse discriminator adapted to receive the optical pulses and provide a digital electrical signal". However, Yariv fig.

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1 does disclose this limitation. In fig. 1 the pulses of a main optical pulse signal are separated, producing plural separated pulse signals and each of the separate pulse signals is then converted from an optical signal to an electrical signal via a photodetector and then to a digital electrical signal via an ADC. Any one of the digital electrical signals reads on "a digital electrical signal", which is based on the original analog electrical signal. The applicant's claim language, "a digital signal" is broader in scope then, for example, "only one digital signal". The applicant's argument seems to be based on the claim language being more exclusive than it is.

### **Conclusion**

13. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (800) 786-9199.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pairedirect.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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